

REMARKS

Claims 1-24 are currently pending in the above-identified patent application. Claim 1 has been amended to more clearly point out that the delta log is stopped when the storage unit is taken off line is brought back online, and that storage on the remaining storage units takes place according to a redundant data storage method. No new matter has been added by these changes since support for the first change may be found on page 8, lines 1-3 of the present Specification, as originally filed, and support for the second change may be found on page 7, lines 21-26 thereof.

The Examiner and applicants' attorney, Samuel M. Freund discussed the subject patent application in a Telephonic Interview dated 02 October 2007. The Examiner stated that the substance of the interview included applicants' attorney pointing out how in the system of Burns "though a delta file A2 is created, file A1 remains linked and delta file A2 is simply a backed up version of a portion of an existing file, and Burns is merely comparing two co-existing, stored and linked files in order to generate a delta file" while in applicants' claimed invention, "the delta log is started concurrent with the step of removing a failed storage unit and the delta log stores changes or data that would have been otherwise stored on the removed/failed storage unit." The Examiner continued that applicants' attorney further mentioned that how in Schneider a second hard disk is provide along with a main disk and the second disk is suspended/removed not the main disk and that data stored in the second disk is data moving backward to more distant times and does not include changes from where a disk is being removed." The Examiner then suggested that applicants amend independent claims 1, 9 and 17 to include limitations similar to "the delta log starts when a failed storage unit is removed and that the delta log stores data that would have been otherwise stored on the failed/removed storage unit and the changes store in the delta log are not stored in another one of the storage units.", to help clarify the claim language and better express the inventive aspect.

Applicant's attorney wishes to clarify two points with regard to the Examiner's summary. First, applicants' claim that a record of the changes occurring during the

removal of the storage unit is made on the delta log, and second that the returned unit is updated in accordance with these changes.

In support of applicants' statements concerning the teachings of Burns et al., in Col. 5, line 25 to Col. 6 line 5 of Burns et al., it is stated in part that: "... In accordance with the invention, the procedure could be changed as follows: (a) **Make a copy of file A1** using the filesystem services. **Let the copy of the file be called A2.** (b) **Modify A2.** Note that file **A1 remains linked while the user modifies A2** and is available for the DBMS queries. ... The efficient backup involves that only the modified portions of a 'versioned' file being backed up. In our example above, the reference file A1 is referred to as a 'versioned' file. Assume file A1 is backed up in total. **However the backup operation of the new version of file A2 would involve backing up only the modified portions with respect to A1.** The file changes from a prior version define what is called a delta file. This delta file compactly represents A2 as a set of changes with respect to A1." (Emphasis added by applicants.). Clearly, the delta file referred to by Burns is simply a backed-up version of a portion of an existing file, and Burns is merely comparing two co-existing, stored and linked files in order to generate a delta file.

By contrast, present claim 1, as amended, recites "changing a portion of said data on the remainder of said plurality of data storage units during the period when one of said plurality of data storage units is removed in accordance with the redundant data storage method; storing a record of said changes in said delta log during the period when one of said plurality of data storage units is removed; ... and updating said one of said plurality of data storage units by updating those portions of data recorded in said delta log." Thus, the delta log of the present claimed invention stores a record of changes on the remaining data storage units in accordance with a redundant data storage method, and does not simply back up already stored data. Only in a RAID 1 system would the delta log be recording the same information as is being recorded by an online storage unit during the period of time that the one data storage unit is removed. See, e.g., Rezaul Islam et al., Col. 1, lines 66-67.

In support of applicants' statements with regard to Schneider, et al., claim 30 of Schneider et al., (line 59 of page 40) states: "A method according to claim 1 further including providing hardware redundancy for a main disk on which both a current operating system visible image as well as circular record of the prior states of overwritten disk locations is maintained, comprising **providing a second hard disk** and a communication link between it and a computer to which the main hard disk is interfaced, **wherein original states of overwritten data is maintained on both disks**, and **where synchronization between the two disks is maintained such that if the second disk does not contain any data from the main disk**, or such data is so far out of date that a simulated disk established on the main disk cannot reach sufficiently back in time to reflect the current image last established on the second disk, the second disk's contents is discarded and re-initialized by: **suspending the second disk's normal processing, establishing a simulated disk on the main disk near the current time, and transferring the simulated image to the second disk**, and should the main disk's simulated image be overrun by changes occurring on the main disk, re-starting the process, and once the simulated image has been transferred, **the available historic prior states of overwritten data on the main disk, starting at the same time at which the simulated disk was established, and moving backward to more distant times, are transferred to the second disk** for as much as there is such data on the main disk and sufficient disk space on the second disk to accept it." (Emphasis added by applicants.). Therefore, Schneider et al. teaches finding changes going **back in time** from when the second disk was removed.

Applicants have amended claim 1 to better clarify the functioning of the delta log. Applicants respectfully believe that claims 9 and 17, as amended in Amendment B, contain the limitations required by the Examiner.

In view of the discussion presented hereinabove, applicants believe that subject claims 1-24, as amended, are in condition for allowance or appeal, the former action by the Examiner at an early being earnestly solicited.

Reexamination and reconsideration are respectfully requested.

Respectfully submitted,

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